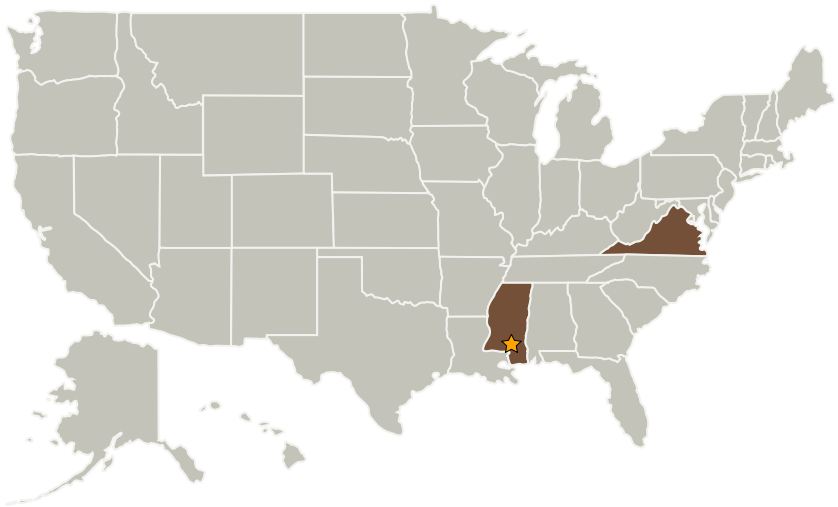
Virtual Sensor Test Instrumentation, Phase II

Completed Technology Project (2006 - 2008)

Project Introduction

Mobitrum has started the development of virtual sensor test instrumentation in Phase I for characterization and measurement of ground testing of propulsion systems. It is clear that future wide availability of smart sensors will significantly reduce the cost and time required to design, repair, or modify sensor systems through modular and re-configurable capability. The Phase II effort will complete the development of: 1) common sensor interface, (2) microprocessor, (3) wireless interface, (4) signal conditioning and ADC/DAC, and (5) on-board EEPROM for metadata storage and executable software to create powerful, scalable, re-configurable, and reliable distributed test instrument. The transducer senses the physical quantity being measured and converts it into an electrical signal. Then the signal is fed to an A/D converter, and is ready for use by the processor to execute functional transformation based on the sensor characteristics stored in TEDS. In order to maximize the data efficiency, a plug-and-play is required to interface with traditional sensors to enhance their identity and capabilities for data processing and communications. Virtual sensor test instrumentation is built upon open-system architecture with standardized protocol modules/stacks easily to interface with industry standards and commonly used software such as IEEE 1451, MATLAB, and LabVIEW.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Mobitrum Corporation	Supporting Organization	Industry	McLean, Virginia

Primary U.S. Work Locations	
Mississippi	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.7 Test Instruments and Sensors